Solubility of Noble Gases in Liquid Alkali Metals

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A review of experimental data available in literature on solubility of noble gases in liquid alkali metals and their alloys has been carried out. It should be noted that this review offers a clear illustration of the fact that the solubility of helium, argon, and xenon in melted sodium and potassium have been investigated. As regards to other "liquid alkali metal - noble gas" systems, they have been either insufficiently investigated or have not been studied at all. The temperature and pressure ranges of the measurements are not sufficiently broad and are limited by 1000 K temperature and 1 MPa pressure.

Proceeding from this analysis, the conclusion can be drawn that a broad spectrum of experimental investigations on the solubility of noble gases in melted alkali metals in wide ranges of temperature and pressure need to be performed. In view of this lack of data, theoretical calculations of the solubility of gases in liquid alkali metals are recommended at temperatures up to 2000 K and pressures up to 10 MPa.